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June 8, 2017  
GO2-17-121

10 CFR 50.73

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**  
**LICENSEE EVENT REPORT NO. 2016-004-01**

Dear Sir or Madam:

Transmitted herewith is Licensee Event Report No. 2016-004-01 for Columbia Generating Station, a supplement to the LER submitted on February 15, 2017. This report is submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A).

There are no commitments being made to the NRC by this letter. If you have any questions or require additional information, please contact Ms. D.M. Wolfgramm, Regulatory Compliance Supervisor, at (509) 377-4792.

Executed on June 8, 2017

Respectfully,

W. G. Hettel  
Vice President, Operations

Enclosure: Licensee Event Report 2016-004-01

cc: NRC Region IV Administrator  
NRC NRR Project Manager  
NRC Senior Resident Inspector/988C  
CD Sonoda – BPA/1399  
WA Horin – Winston & Strawn



## LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to [Infocollections.Resource@nrc.gov](mailto:Infocollections.Resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

## 1. FACILITY NAME

Columbia Generating Station

## 2. DOCKET NUMBER

05000 397

## 3. PAGE

1 OF 3

## 4. TITLE

Automatic Scram Due to Off-site Load Reject

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER		
12	18	2016	2016	004	01	06	08	2017	FACILITY NAME	DOCKET NUMBER		
										05000		
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)									
1			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
			<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)	
			<input type="checkbox"/> 20.2203(a)(2)(v)			<input type="checkbox"/> 50.73(a)(2)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(i)	
			<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)	
			<input type="checkbox"/> 50.73(a)(2)(i)(C)			<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A				

## 12. LICENSEE CONTACT FOR THIS LER

## LICENSEE CONTACT

Desiree M. Wolgramm

## TELEPHONE NUMBER (Include Area Code)

(509) 377-4792

## 13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

## 14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

## 15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

## ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On December 18, 2016 at 11:24 hours, an automatic scram occurred due to a fault on an off-site transmission network. A reactor scram was automatically initiated by the plant response to the transient.

All rods fully inserted, Main Steam Isolation Valves [SB,V] automatically closed due to loss of power to both Reactor Protection System [JC] busses. All safety systems operated as designed. Two Safety Relief Valves [SB,V] were initially cycled automatically, then several manually to maintain Reactor Pressure Vessel [AC] pressure. Reactor water level was maintained with Reactor Core Isolation Cooling [BN], Control Rod Drive [AA] flow, and High Pressure Core Spray [BG].

The entity responsible for the off-site transmission network, Bonneville Power Administration (BPA), performed a cause evaluation for the loss of off-site power. The cause evaluation stated the event was caused by three sequential 500-kV breaker failures. BPA took immediate corrective actions to restore the off-site transmission network. The root cause evaluation addressing the plant response was performed by plant personnel.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER
		YEAR      SEQUENTIAL NUMBER      REV NO.
Columbia Generating Station	05000- 397	2016 - 004 - 01

**NARRATIVE****Plant Conditions**

The plant was operating at 100% power prior to the event. There were no safety related systems out of service prior to the event.

**Event Description**

On December 18, 2016 at 11:24 hours, an automatic scram occurred due to a fault on an off-site transmission network. A reactor scram was automatically initiated by the plant response to the transient.

All rods fully inserted and Main Steam Isolation Valves [SB,V] automatically closed due to loss of power to both Reactor Protection System (RPS) [JC] busses that occurred during the transient following the scram. All safety systems operated as designed. A full safety system isolation occurred due to the loss of RPS, which isolated Reactor Closed Cooling [CC] flow from containment. This caused Primary Containment (PC) temperature and pressure to increase causing high PC pressure actuations to occur. Two Safety Relief Valves [SB,V] were initially cycled automatically, then several manually to maintain Reactor Pressure Vessel (RPV) [AC] pressure. Reactor water level was restored with Reactor Core Isolation Cooling (RCIC) [BN], Control Rod Drive [AA] flow, and High Pressure Core Spray (HPCS) [BG].

After the initial successful start and injection of RCIC, a plant operator failed to establish the proper line up for re-initiation. This resulted in a trip of RCIC and using HPCS to maintain RPV level.

Per plant procedures after the scram an operator tripped the main turbine (MT) [TA], but failed to trip the main generator (MG) [TB]. This allowed voltage to degrade until power was automatically transferred to the backup power sources. The PC was vented through a Standby Gas Treatment Filter [BH] per plant procedures to lower PC pressure.

**Cause**

Bonneville Power Administration (BPA) (operator of the off-site transmission network) performed an evaluation of the off-site transmission network failure. The evaluation found that three breakers failed, each with different causes.

The first breaker failed to operate properly due to air and water contamination in the hydraulic fluid combined with low ambient temperature, and a defective motor contactor. Corrective actions were performing a hydraulic service and replacing the motor contactor.

The second breaker failure was due to condensed water vapor in the pneumatic control valve freezing during cold-weather conditions. The corrective action taken was installing heaters.

The third breaker failure was due to condensed water vapor in the pneumatic control valve freezing during cold-weather conditions and a failure in a trip circuit. Corrective actions taken were installing heaters and replacing the damage in the trip circuit.

Station personnel performed a root cause evaluation on the station's response to the reactor scram, including failure to trip both the MT and MG, and human performance issues operating RCIC. The plant responded to the transient as designed. The human performance issues are being addressed in Operations by updating procedures, training, and oversight.

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CONTINUATION SHEET**

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Columbia Generating Station	05000- 397	YEAR 2016	SEQUENTIAL NUMBER 004	REV NO. 01

**NARRATIVE****Operating Experience and Previous Occurrences**

There were no occurrences of a scram due to a loss of off-site power in the last 10 years.

**Assessment of Safety Consequences**

This event did not challenge the ability of Columbia Generating Station to safely shutdown, and all plant systems responded as designed. Human performance issues resulted in a trip of RCIC, and an automatic transfer of power supplies to backup power supplies per design. The reactor scram and resulting transient caused a loss of RPS which resulted in a full safety system actuation and a reduction of cooling to the PC. The trip of RCIC was not consequential since HPCS was available, and was used, to maintain RPV level. The power supplies transferred to backup power supplies as designed. The reduction of cooling to the PC did not challenge PC integrity, and was restored by operator action. There were no adverse impacts to those systems due this event. There were no undesired radiological or industrial safety aspects resulting from this event.

**Energy Industry Identification System Information**

Energy Industry Identification System information codes from IEEE Standards 805-1984 and 803-1983 are represented in brackets as [X] and [XX] throughout the body of the narrative.